

NEW SPECIES OF *PTEROSTYLIS* R. Br. (ORCHIDACEAE) FROM VICTORIA AND NEW SOUTH WALES

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ABSTRACT

Jones, David L. and Clements, Mark A. *Muelleria* 8(1): 73–83 (1993). — *Pterostylis aenigma*, *P. basaltica*, *P. cheraphila*, *P. chlorogramma*, *P. planulata* and *P. smaragdina* from Victoria and *P. petrosa* from southern New South Wales (all Orchidaceae) are described as new.

INTRODUCTION

As part of continuing research into the systematics of Australian Orchidaceae (Clements 1989, Jones and Clements 1989a, 1989b, Jones 1991), the following species of *Pterostylis* R. Br. are described as new. All are from south-eastern Australia, with the majority being endemic to Victoria. The descriptions facilitate the preparation of the accounts of the genus for the 'Flora of Victoria' and 'Flora of Australia'.

TAXONOMY

Pterostylis aenigma D. Jones et M. Clements *species nova*

affinis *P. cucullatae* R. Br. sed habitu graciliore, flore majore angulosiore, sepalo dorsali et petalis multo longioribus, sepalis lateralibus angustioribus minus scabridis cum apicibus filiformibus longioribus, labello longiore angustiore multo curvato, et stigmatate longiore angustiore differt.

TYPUS: Victoria, Knocker Track, Omeo, 37°06'S, 147°36'E, 11 Dec. 1989, R. Clark s.n. (HOLOTYPE: CBG; ISOTYPE: CBG, MEL).

Tuberous, terrestrial herb growing in small groups. *Rosette* semi-basal around the scape to cauline; leaves 3–4, oblong-elliptical to oblong-lanceolate, 4–6 cm × 15–18 mm, mid green to dark green, entire, obtuse; petioles 4–10 mm × 2–3 mm, narrowly winged. *Scape* 15–28 cm tall, slender, smooth. *Sterile bract* 3–5 cm × 10–14 mm, linear-lanceolate, sheathing at the base. *Fertile bract* similar. Ovary 10–12 mm long, strongly ribbed. *Flower* solitary, 40–44 mm long, translucent white, striped and suffused with green and brown; galea gibbous at the base then erect before bending forwards, then flat or slightly decurved to the apex. *Dorsal sepal* 5.5–6.4 cm × 18–22 mm, inflated at the base then constricted and tapered to the acute apex, white with a dark median stripe, green margins and a green apex. *Lateral sepals* erect, loosely embracing the galea; sinus protruding as a slight bulge when viewed from the side, deeply ve-ee'd when viewed from the front; conjoined part 18–20 mm × c. 10 mm, narrowed to c. 4 mm across at the base, pale brown with darker stripes and suffusions, the ventral surface minutely scabrid, the upper margins inrolled, gradually tapered into the free points; free points 25–36 mm long, linear-tapered, involute, erect, held high above the galea. *Petals* 4–4.5 cm × 7–8 mm, obliquely linear-lanceolate, slightly falcate, subacuate, central part white, rest green or brown; flange c. 1.3 mm across, flat, obtuse. *Labellum* erect, curved forwards prominently in the distal third, the apex protruding prominently through the sinus in the set position; lamina 18–21 mm × 3.5–4 mm, linear to linear-elliptical, tapered to the obtuse apex, dark chocolate brown throughout; callus c. 1 mm across, slightly raised, expanded at the apex; basal appendage 5–5.5 mm long, linear, shallowly curved, apex penicillate. *Column* 18–20 mm long, bent away from the ovary at about 50 degrees then erect, green. *Column wings* 6–7 mm

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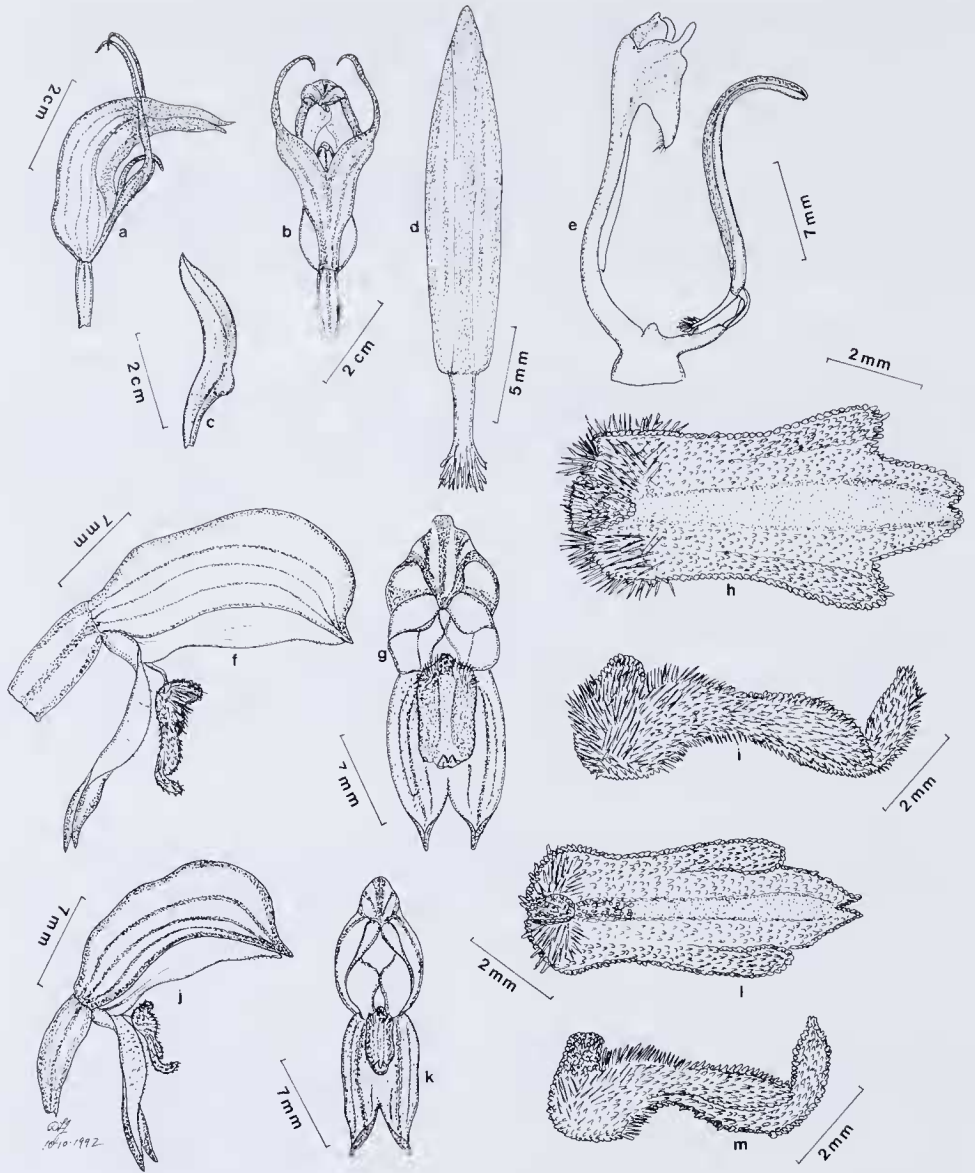


Fig. 1. a-e) *Pterostylis aenigma* a — flower from side. b — flower from front. c — petal. d — labellum flattened out, from above. e — column and labellum from side. (drawn from the type collection). f-i) *Pterostylis smaragdina* f — flower from side. g — flower from front. h — labellum flattened out, from above. i — labellum from side. (drawn from the type collection). j-m) *Pterostylis chlorogramma* . j — flower from side. k — flower from front. l — labellum flattened out, from above. m — labellum from side. (drawn from the type collection)

long; basal lobe 3–3.3 mm × c. 2 mm, green, at an angle of about 40 degrees, apex obtuse, inner margins incurved, sparsely adorned with short white cilia; mid section c. 3.5 mm long, dark green; apical lobe c. 1.4 mm long, linear, subacute. *Stigma* 9–11 mm × c. 2 mm, linear-oblong, raised. *Anther* c. 2 mm long, shortly rostrate. *Pollinia* 2.4–2.6 mm long, linear-clavate, falcate, yellow, mealy. *Capsule* not seen. (Fig. 1 a-e)

DISTRIBUTION AND HABITAT

Known with certainty only from the vicinity of the type locality in Victoria. The Victorian habitat is mountainous and the species grows on flats along the floodplain of a stream in tall open forest, with a few plants occurring on moist slopes in small side gullies. Soils are grey to brown clay loams.

FLOWERING PERIOD

November and December.

NOTES

This species has been confused with *P. cucullata* R. Br. but has much smaller leaves, a thinner scape and larger, more angular flowers in which the labellum protrudes prominently from the sinus. Other floral differences include a much longer dorsal sepal and petals, narrower and less scabrid lateral sepals with longer free points, a longer, narrower, more prominently curved labellum and a longer, narrower stigma. The two species occupy different habitats with *P. cucullata* growing mainly in coastal and near-coastal habitats, although it does extend some distance inland in Victoria. Some collectors have suggested that the new species may be of hybrid origin perhaps involving *P. cucullata* and *P. furcata* Lindley. Although both species grow in the general area, only *P. furcata* grows in the immediate vicinity and the new species is represented by several small but actively reproducing colonies.

CONSERVATION STATUS

Of restricted occurrence but poorly known and apparently some plants recently damaged by herbicides; suggest 2VK by criteria of Briggs & Leigh (1989).

ETYMOLOGY

From the Latin **aenigma**, obscure, puzzling, baffling; in reference to the puzzling origin and distribution of this species.

Pterostylis basaltica D. Jones et M. Clements *species nova*

affinis *P. excelsae* M. Clements a qua floribus manifeste variegatae; sepalis lateralibus latioribus; labelli setis paucioribus brevioribus, lobo basali multo majore et apice producto, differt.

TYPUS: Victoria: near Woorndoo, 37° 55'S, 142° 57'E, 31 Dec. 1991, *P. Barnett s.n.* (D.L. Jones 8689) (HOLOTYPE: CBG; ISOTYPE: CBG, MEL, AD).

Solitary, tuberous, terrestrial herb. Leaves elliptical, 15–28 mm × 6–9 mm, 8–15 in a stem-encircling, radical rosette, usually senescent at flowering. *Inflor-escence* 9–25 cm tall, slender to moderately stout, with 3–5 sheathing, ovate-lanceolate, acuminate stem leaves 15–30 mm × 7–9 mm. *Floral bracts* 10–20 mm long ovate-lanceolate, acuminate, closely sheathing. *Pedicels* 8–30 mm long. *Ovary* 6–9 mm long. *Flowers* 1–15, transparent with green or greenish-brown suffusions, procor to semi-erect; galea gibbous at the base, curved uniformly, decurved suddenly to the apex; proximal flanges of petals separated and not touching at the base of the galea. *Dorsal sepal* 12–14 mm long, cucullate, obliquely erect, abruptly decurved in distal third, 3 brown lines prominent, apical point 6–9 mm long, filiform, acuminate, straight or usually upcurved. *Lateral sepals* deflexed, green to greenish-brown with translucent areas; conjoined part flat or shallowly concave, 6–7 mm × 9–12 mm, the margins slightly thickened, with a few short clear cilia on the exterior surface; sinus narrow, the segments divergent; free points 12–15 mm long, filamentous, deflexed, c. 5 mm apart at the tips. *Petals* ovate-lanceolate, 14–16 mm × 5–6 mm, slightly falcate, acuminate, transparent with brown lines, dorsal ridge with numerous cilia, proximal flange poorly developed. *Labellum* highly irritable on a curved claw c. 3.5 mm long; lamina more or less ovate, 4.5–5.5 mm × 2.7–3 mm, greenish to brownish, moderately thin, constricted in the proximal quarter, widest at base and near the middle, narrowed to a

somewhat drawn-out, subacuminate apex; lateral margins with 6–8 pairs of white, obliquely erect trichomes, the proximal pair longest (c. 3 mm long), widely spreading; basal lobe whitish, swollen, with 4 trichomes c. 1.5 mm long; underside with a narrow deep central channel extending nearly to the apex, bordered by a white siliceous band. *Column* 12–14 mm long, curved. *Column wings* c. 3 mm × 2 mm, more or less rectangular, anterior margins incurved, ciliate. *Stigma* 5.5–6.5 mm × c. 2 mm, narrowly elliptical, upper margin coarsely crenate. *Anther* c. 2 mm long, obtuse. *Pollinia* c. 2 mm long, linear-clavate, yellow, mealy. *Capsule* not seen. (Fig. 2 a-d)

DISTRIBUTION AND HABITAT

Endemic to south-western Victoria. Grows among rocks on basalt outcrops which are scattered in grassland and sparse woodland, often with *Acacia paradoxa*, in red-brown loam. Grasses predominate in the habitat, particularly *Themeda triandra*, and the orchids can be difficult to discern at flowering time.

FLOWERING PERIOD

November to January.

NOTES

This species, part of the *Pterostylis excelsa* complex, can be distinguished from *P. excelsa* by its generally broader flowers (especially the lateral sepals), prominent markings and the labellum which has fewer, shorter marginal trichomes, a much larger basal lobe and the mid-lobe tapers to a drawn-out apex. It is one of very few species of the 'rufa' group to grow on soils of basaltic origin.

CONSERVATION STATUS

Apparently uncommon to rare, perhaps restricted to roadside verges and not conserved (P. Barnett pers. comm.); suggest 2E according to Briggs and Leigh (1989).

ETYMOLOGY

In reference to its apparent predilection for growing on basaltic soils.

Pterostylis cheraphila D. Jones et M. Clements *species nova*

affinis *P. maximae* M. Clements et D. Jones sed foliis brevioribus angustioribus rosulatis; floribus minoribus nitentibus brunneis; et labello minore, anguste ovato ad ovato.

TYPUS: Victoria: Wimmera River, near Dimboola, 36°25'S, 141°59'E, 20 Oct. 1989, *P. Branwhite s.n.* (D.L. Jones 5333) (HOLOTYPE: CBG; ISOTYPI: CBG, MEL).

Solitary, tuberous, terrestrial herb. Leaves linear-ovate to linear-elliptical, 6–22 mm × 3–6 mm, sessile to subsessile, obtuse to acute, 6–12 in a radical, stem-encircling rosette, usually senescent at flowering. *Scape* 6–25 cm tall, slender to moderately stout, with 3–5 closely sheathing, ovate-lanceolate, acute to acuminate stem leaves. *Floral bracts* 12–25 mm long, ovate-lanceolate, closely sheathing, acute to acuminate. *Pedicels* 10–22 mm long, slender. *Ovary* 8–10 mm long. *Flowers* 1–7, transparent with dark reddish-brown suffusions in the galea, shiny, porrect to semi-erect; galea strongly gibbous at the base, more or less gently curved, although somewhat flattened at the top, decurved suddenly to the apex; proximal petal flanges widely separated and not closing off the base of the galea. *Dorsal sepal* 13–17 mm long, cucullate, obliquely erect, abruptly decurved in the distal quarter, apical point 7–11 mm long, filiform, long-acuminate, porrect to upcurved. *Lateral sepals* deflexed, reddish brown, shiny; conjoined part shallowly concave, 6–8 mm × 10–14 mm, the margins slightly incurved, with numerous white trichomes c. 0.5 mm long; sinus very narrow, the lobes divergent; free points

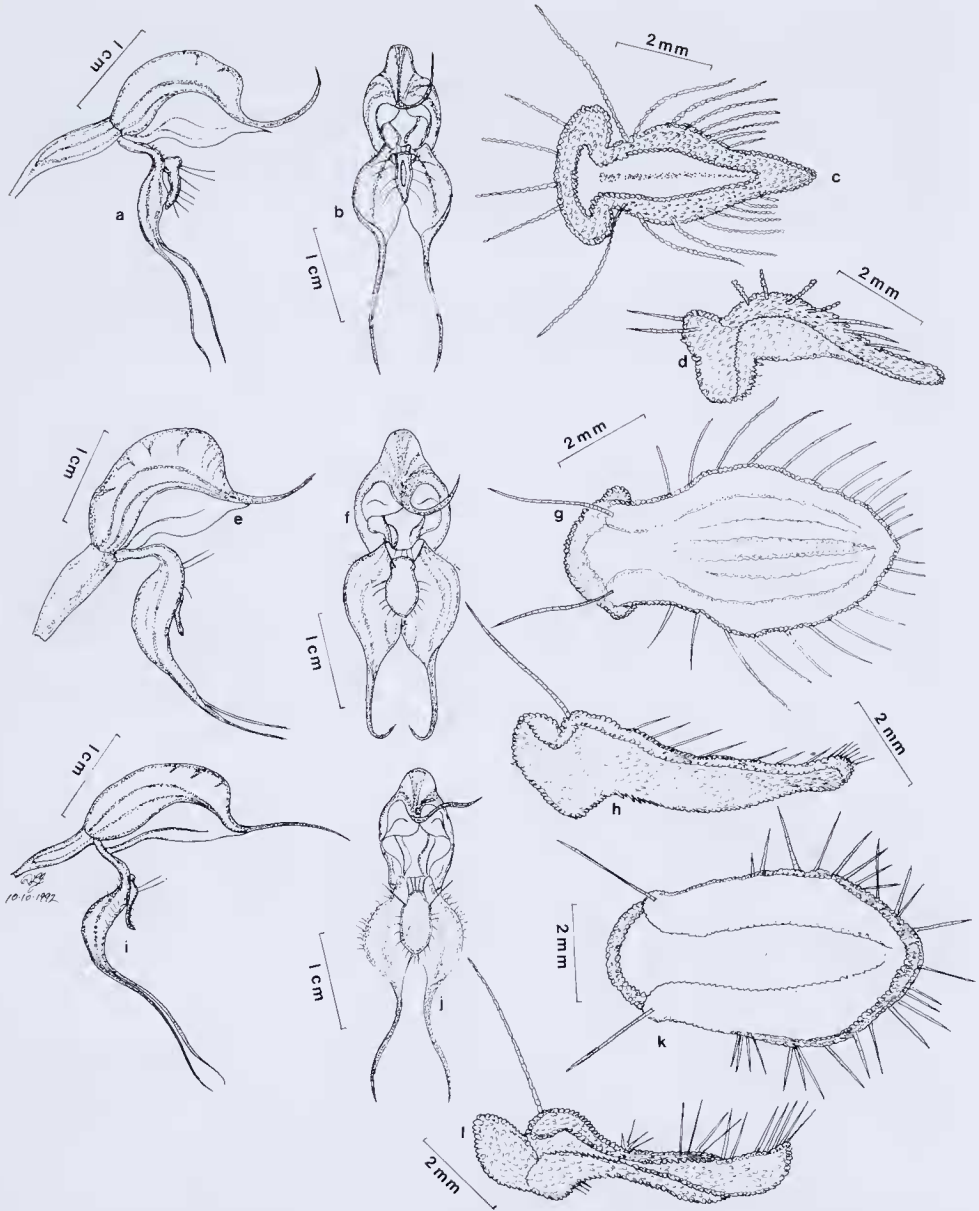


Fig. 2. a-d *Pterostylis basaltica* a — flower from side. b — flower from front. c — labellum flattened out, from above. d — labellum from side. (drawn from the type collection). e-h *Pterostylis cheraphila* e — flower from side. f — flower from front. g — labellum flattened out, from above. h — labellum from side. (drawn from the type collection). i-l *Pterostylis planulata* i — flower from side. j — flower from front. k — labellum flattened out, from above. l — labellum from side. (drawn from the type collection).

10–23 mm long, filamentous, more or less parallel. *Petals* ovate-lanceolate, 14–18 mm × 5–6 mm, acuminate, transparent with brown lines, dorsal ridge with numerous trichomes, proximal flange poorly developed. *Labellum* obovate-elliptical, 6–7 mm × 3–3.5 mm, dark brown, thin textured, constricted in proximal quarter, widest near the middle, margins irregularly scalloped, apex obtuse; lateral margins

with 9–12 pairs of stiff white, spreading trichomes *c.* 1.5 mm long; basal lobe raised, sloping backwards, a pair of prominent erect trichomes *c.* 3 mm long arising near the constriction; underside with a narrow, deep, central channel extending nearly to the apex, bordered by a band of pale siliceous cells. *Column* 16–18 mm long, curved. *Column wings* *c.* 4 mm × 3 mm, more or less rectangular, anterior margins incurved, ciliate, barrier cilia moniliform, entire. *Stigma* 6–7 mm × *c.* 2.5 mm, narrowly elliptical, margins more or less undulate. *Anther* *c.* 1.5 mm long, obtuse. *Pollinia* *c.* 2 mm long, linear-clavate, yellow, mealy. *Capsule* not seen. (Fig. 2 e-h)

DISTRIBUTION AND HABITAT

Apparently endemic to north-western Victoria growing along the banks of the Wimmera River in riverine woodland dominated by *Eucalyptus largiflorens*. The soil is a cracking grey clay to silty clay.

FLOWERING PERIOD

October and November.

NOTES

This species has many similarities to *P. maxima* M. Clements and D. Jones. It can be distinguished from that species by its shorter, narrower rosette leaves, smaller, glossy brown flowers and a smaller, narrower labellum. The habitat occupied by each species is very different. Whereas *P. maxima* grows in well-drained, often stony soils in open forest and mallee scrub, *P. cheraphila* by comparison is found in riverine forest in heavy textured clays and silty clays. These sites are within the floodplain of the river and whole colonies of this orchid become submerged at peak floods. This is a most unusual habitat for a representative of this group of orchids.

CONSERVATION STATUS

Although locally common this species is very restricted in distribution and is conserved in a National Park; suggest 2RC according to Briggs and Leigh (1989).

ETYMOLOGY

From the Greek *cheras*, alluvium, silt, detritus, *philo*, loving; in reference to the silty soils where the species grows.

Pterostylis chlorogramma D. Jones *et* M. Clements *species nova*

affinis *P. longifoliae* R. Br. sed planta robustiore; floribus majoribus distincte vittatis; petalorum jugis marginalibus ad basin galeae prominentibus; et labello majore smaragdino, lobo basali truncato.

TYPUS: Victoria; near Grantville, 38°24'S, 145°32'E, 21 August 1991, *G. Glare s. n.* (D. L. Jones 7585) (HOLOTYPE: CBG; ISOTYPE: CBG, MEL).

Terrestrial tuberous herb. *Rosette* a separate plant, on a slender stalk 2–6.5 cm tall; leaves 3–6, 10–23 mm × 3–5 mm, linear-lanceolate to narrow-ovate, dark green above, smooth and paler beneath acute, sessile or shortly petiolate. *Flowering plants* 20–45 cm tall. *Stem leaves* 5–9, 2–6 cm × 3–6 mm, linear-lanceolate to lanceolate, sessile, obliquely erect to spreading, dark green above, paler beneath, margins recurved, apex acute, sheathing at the base. *Floral bracts* 8–14 mm × 4–7 mm, ovate, acuminate, closely sheathing. *Pedicel* 8–20 mm long, straight. *Ovary* 5–6 mm long, dark green, smooth to slightly verrucose. *Flowers* 1–7, 15–18 mm long, obliquely erect, pale translucent green with darker green stripes, somewhat shiny; galea curved throughout, curving downwards from above the middle and then suddenly near the apex; petals with broad proximal flanges which block off the base of the galea. *Dorsal sepal* 15–18 mm × *c.* 10 mm, more or less ovate, inflated in the proximal half then tapered to the apex; apical point *c.* 1 mm long,

brownish. *Lateral sepals* deflexed, oblong, 13–16 mm × 6–7 mm, slightly curved forwards near the apex, inner surface minutely scabrous; sinus narrow, lobes divergent; free points 4–5 mm long, 5–6 mm apart at the apex, green or brownish. *Petals* 14–16 mm × 2.5–3 mm, slightly falcate; central ridge prominent; proximal posterior flange *c.* 2 mm across, well-developed, obtuse; distal posterior flange *c.* 0.5 mm wide; anterior flange 2.5–3 mm wide, transparent, margins entire. *Label-lum* narrowly oblong, *c.* 7 mm × 2.5–3 mm, slightly constricted in distal third, emerald green with a dark green basal mound and central callus, rarely wholly brownish green; basal mound *c.* 2 mm thick, prominent, erect, apex truncate, covered with beaded siliceous cells; lateral lobes *c.* 5–5.5 mm long, moderately well developed, ridged and somewhat spreading in the distal half, covered with beaded, siliceous cells, a few protruding clear, acicular cells to 0.3 mm long on the proximal margins; mid-lobe *c.* 1.7 mm long, the apex strongly upcurved, pale green, covered with beaded siliceous cells, densely margined with clear, short acicular cells; apex notched for *c.* 0.5 mm, the lobes divergent. *Column* *c.* 14 mm long, curved, green. *Column wings* *c.* 3 mm × 3 mm, more or less rectangular, anterior margins incurved, with numerous flat cilia *c.* 1 mm long; upper lobe *c.* 0.6 mm long, ovoid, obtuse. *Stigma* *c.* 6 mm × 1.8 mm, narrow-elliptical, apex broadly notched, distal margins crenulate. *Anther* *c.* 1.4 mm long, shortly rostrate. *Pollinia* *c.* 1.8 mm long, linear-oblong, yellow, mealy. *Capsule* not seen. (Fig. 1 j-m)

DISTRIBUTION AND HABITAT

Apparently endemic to south-eastern Victoria. Grows in moist open forest among herbs and shrubs in shallow, grey-brown clay loams.

FLOWERING PERIOD

July to September.

NOTES

P. chlorogramma has affinities with *P. smaragdina* D. Jones & M. Clements but has smaller, narrower flowers which are much paler with prominent dark green stripes. It also has narrowly oblong lateral sepals and a smaller, narrower labellum with smaller, less protruding lateral lobes. These differences become obvious when flattened labella of the two taxa are compared (see Fig. 1). *P. chlorogramma* can be distinguished readily from *P. longifolia* R. Br. by its much larger flowers, petals with prominent flanges which block off the base of the galea and a much larger, emerald green labellum.

CONSERVATION STATUS

Apparently of restricted distribution and uncommon to rare. Known to be conserved in Wilson's Promontory National Park but threatened by gravel extraction activities at other sites (G. Glare pers. comm.). Suggest status of 3VC by criteria of Briggs & Leigh (1989).

ETYMOLOGY

From the Greek, *chloros*, green, *gramme*, line; in reference to the prominent green lines on the flowers.

Pterostylis petrosa D. Jones et M. Clements *species nova*

affinis *P. bisetae* Blackmore et Clemesha sed planta multo brevior; galea latior; sepalorum apicibus brevioribus filamentosis; sepalis lateralibus latioribus; petalis majoribus; et labello longiore angustiore elliptico ad paene oblongo.

TYPUS: New South Wales; The Rock, 35°16'S, 147°07'E, 7 December 1988, A.E. Logan *s.n.* (HOLOTYPE: CBG; ISOTYPI: CBG, NSW).

Solitary, tuberous, terrestrial herb. Leaves narrowly elliptical to narrowly obovate, 15–25 mm × 6–9 mm, sessile to subsessile, obtuse to subacute, 6–10 in a

sparse radical rosette, usually senescent at flowering. *Scape* 9–15 cm tall, slender to moderately stout, with 2–4 closely sheathing, ovate-lanceolate, acute to acuminate stem leaves. *Floral bracts* 10–23 mm long, ovate-lanceolate, closely sheathing, acute to acuminate. *Pedicels* 14–20 mm long, slender. *Ovary* 8–10 mm long. *Flowers* 1–8, transparent with broad brown lines and reddish brown patches in the galea and sepals, porrect; galea gibbous at the base, shallowly curved, decurved suddenly to the apex; proximal petal flanges widely separated and not closing off the base of the galea. *Dorsal sepal* 18–20 mm long, cucullate, obliquely erect, abruptly decurved in distal third, reddish brown with darker lines and transparent areas, apical point 8–10 mm long, filiform, long acuminate, porrect to upcurved. *Lateral sepals* deflexed, reddish brown with darker lines and transparent areas; conjoined part deeply concave, 6–8 mm × 14–16 mm, the margins thickened and slightly incurved with numerous white trichomes *c.* 1 mm long; sinus narrow, the lobes divergent; free points 14–20 mm long, filamentous, more or less parallel. *Petals* ovate-lanceolate, 16–19 mm × 5–6 mm, long-acuminate, curved at the base, transparent with red-brown lines, dorsal ridge with numerous trichomes, proximal flange poorly developed. *Labellum* highly irritable on a curved claw *c.* 3.5 mm long; lamina oblong-elliptical, 7–9 mm × 3–3.5 mm, brown, thin-textured, constricted in proximal third, widest above the middle, margins irregularly scalloped, apex broadly obtuse; lateral margins with 9–12 pairs of stiff, white, spreading trichomes *c.* 1.2 mm long; basal lobe slightly raised, sloped backwards, a pair of prominent, erect trichomes *c.* 3 mm long arising near the constriction; underside with a narrow, deep, central channel extending nearly to the apex, bordered by a band of pale, siliceous cells. *Column* 17–19 mm long, more or less straight. *Column wings* *c.* 4 mm × 3 mm, more or less rectangular, anterior margins incurved, ciliate; barrier cilia moniliform, entire. *Stigma* 8–10 mm × *c.* 3 mm, oblong-elliptical, margins irregularly crenate. *Anther* *c.* 1.2 mm long, obtuse. *Pollinia* *c.* 2 mm long, linear, yellow, mealy. *Capsule* not seen. (Fig. 3)

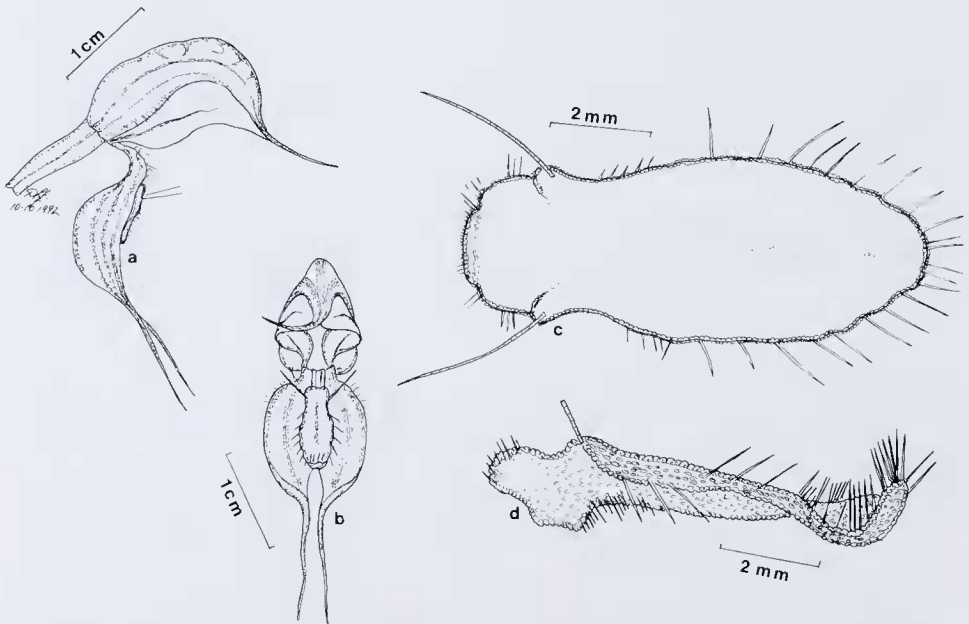


Fig. 3. *Pterostylis petrosa*. a — flower from side. b — flower from front. c — labellum flattened out, from above. d — labellum from side. (drawn from M. A. Clements 4066)

DISTRIBUTION AND HABITAT

Apparently endemic to southern New South Wales where it occurs on disjunct rock outcrops in the Riverina District. It grows in sandy loams in rock crevices and ledges under sparse forest.

FLOWERING PERIOD

September to November.

NOTES

This species, part of a complex around *P. biseta* Blackmore and Clemesha, can be distinguished by its shorter growing habit, wider galea, shorter free points on the sepals, larger petals and a longer, oblong-elliptical to elliptical labellum.

CONSERVATION STATUS

Of restricted distribution but conserved; suggest 2EC by criteria of Briggs and Leigh (1989).

ETYMOLOGY

From the Greek *petrosa*, rocky, stony; in reference to the habitat and also an oblique reference to the type locality.

Pterostylis planulata D.Jones et M. Clements *species nova*

affinis *P. bisetae* Blackmore et Clemesha sed planta multo graciliore floribus minoribus viridibus; labello oblongo-ovoideo ad oblongo-obovoideo viride ad basin minus constricto; et sepalis ubi unitis vadose concavis vel fere planis.

TYPUS: Victoria; Mt. Zero, northern end of the Grampians, 36°54'S, 142°22'E, 26 November 1991, *P. Branwhite s.n. (D.L. Jones 8591)* (HOLOTYPUS: CBG; ISOTYPUS: CBG, MEL).

Solitary, tuberous, terrestrial herb. Leaves 18–30 mm × 4.5–8 mm, linear-elliptical to linear-ovate, sessile to subsessile, subacute to acute, 5–8 in a sparse radical stem-encircling rosette, usually senescent at flowering. *Scape* 10–20 cm tall, slender, with 3 or 4 closely sheathing, ovate to lanceolate, acute to acuminate stem leaves. *Pedicels* 10–24 mm long, slender. *Ovary* 5–7 mm long. *Flowers* 1–7, transparent with green darker green lines and patches in the galea, porrect; galea gibbous at the base, more or less gently curved, decurved suddenly to the apex; proximal petal flanges nearly closing off the base of the galea. *Dorsal sepal* 12–15 mm long, cucullate, obliquely erect, abruptly decurved in distal quarter, green with dark green lines and transparent areas, apical point 20–30 mm long, filiform, long acuminate, porrect to decurved. *Lateral sepals* deflexed, green with dark green lines and transparent areas; conjoined part very shallowly concave to almost flat, 6–8 mm × 4–5 mm, the margins slightly incurved, with numerous white trichomes c. 1 mm long; sinus narrow, the lobes divergent; free points 20–35 mm long, filamentous, more or less parallel. *Petals* obovate-lanceolate, 14–17 mm × 5–6 mm, acuminate, curved at the base, transparent with green lines, dorsal ridge with numerous trichomes, proximal flange poorly developed. *Labellum* highly irritable on a curved claw c. 3.3 mm long; lamina oblong-ovate to oblong-obovate, 5.5–7 mm × 3–3.5 mm, dark green, thin textured, barely constricted in distal quarter, widest above the middle, margins irregularly undulate, apex upcurved to cymbiform; lateral margins with 9–12 pairs of short stiff white spreading trichomes c. 1 mm long; basal lobe raised, sloped backwards, a pair of prominent, erect trichomes c. 3 mm long arising from a swollen area near the constriction; underside with a broad, shallow central channel extending nearly to the apex, bordered by a band of siliceous cells. *Column* 13–16 mm long, strongly curved in distal third. *Column wings* c. 4 mm × 3 mm, more or less rectangular, anterior margins incurved, ciliate; barrier cilia maniform, entire. *Stigma* 6–7 mm × c. 2 mm, narrowly elliptical, upper margins irregularly toothed. *Anther* c. 1.3 mm long,

obtuse. *Pollinia* c. 1.6 mm long, linear-clavate, yellow, mealy. *Capsule* not seen. (Fig. 2 i-l)

DISTRIBUTION AND HABITAT

Endemic to south-western Victoria where occurring on the northern outliers of the Grampians. Grows in shallow grey sand on sandstone rock ledges and in crevices in the scant protection of low shrubs.

FLOWERING PERIOD

October and November.

NOTES

P. planulata is part of a complex of taxa surrounding *P. biseta* Blackmore and Clemesha. It can be distinguished from *P. biseta* by its more slender habit and smaller green flowers, with an oblong-ovate to oblong-obovate green labellum which is scarcely constricted at the base. The conjoined part of the lateral sepals, being shallowly concave to nearly flat, is also very distinctive.

CONSERVATION STATUS

Apparently of restricted distribution and uncommon to rare, although conserved; suggest 2RC according to Briggs and Leigh (1989).

ETYMOLOGY

From the Latin *planus*, even flat, level; in reference to the shallowly concave to nearly flat lateral sepals.

Pterostylis smaragdina D. Jones et M. Clements *species nova*

affinis *P. longifoliae* R. Br. a qua floribus majoribus, petalis base umbonato prominenti basem galeae obstructenti. et labello permajore, smaragdino differt.

TYPUS: Victoria; Ironbark Rd, Diamond Creek, 37°41'S, 145°10'E, 9 July 1987, H.M.E. Richards 201 (HOLOTYPE: CBG; ISOTYPE: CBG, MEL).

Terrestrial tuberous herb. Rosette a separate plant, on a slender stalk 2–5 cm tall; leaves 3–5, linear-lanceolate to narrow-ovate, 9–35 mm × 4–8 mm, dark green above, smooth and paler beneath acute sessile or shortly petiolate. *Flowering plants* 9–55 cm tall. *Stem leaves* 5–7, 2–10 cm × 3–6 mm, linear-lanceolate to lanceolate, sessile, obliquely erect, dark green above, paler beneath, margins recurved, apex acute, sheathing at the base. *Floral bracts* 10–17 mm × 4–8 mm, ovate, acuminate, closely sheathing. *Pedicel* 5–20 mm long, straight. *Ovary* 6–7 mm long, dark green, smooth to slightly verrucose. *Flowers* 1–10, 17–22 mm long, obliquely erect, translucent green with darker green stripes and suffusions, somewhat shiny; galea curved throughout, curving downwards from near the middle and then suddenly near the apex; petals with broad proximal flanges which block off the base of the galea. *Dorsal sepal* 18–22 mm × 12 mm, more or less ovate, broadly inflated in the proximal half then tapered to apex, apical point c. 1 mm long, brownish. *Lateral sepals* deflexed, narrowly-elliptical, 16–19 mm × 7–8 mm, slightly curved forwards near the apex, inner surface minutely scabrous; sinus narrow, lobes divergent; free points 6–7 mm long, 4–5 mm apart at the apex, green or brownish. *Petals* 15–16 mm × c. 4 mm, slightly falcate; central ridge prominent; proximal posterior flange c. 2 mm across, well-developed, obtuse; distal posterior flange c. 0.5 mm wide; anterior flange 2.5–3 mm wide, transparent, acute margins entire. *Labellum* c. 8 mm × 4 mm, more or less oblong, emerald green with a dark green basal mound and central callus, mid-lobe paler; basal mound c. 2.5 mm thick, prominent, erect, apex obtuse covered with beaded siliceous cells and very short clear, acicular cells; lateral lobes 6–6.5 mm long, well developed, ridged and widely spreading in the distal half, covered with beaded, siliceous cells, numerous protruding clear, acicular cells to 0.3 mm long on the proximal margins; mid-lobe

c. 2 mm long, the apex strongly upcurved, pale green, covered with beaded siliceous cells, densely margined with clear, short acicular cells; apex notched for *c.* 0.5 mm, the lobes divergent. *Column c.* 15 mm long, curved, green. *Column wings c.* 4 mm × 4 mm, more or less rectangular, anterior margins incurved, with numerous flat cilia *c.* 1 mm long; distal lobe *c.* 0.6 mm long, ovoid, obtuse. *Stigma c.* 7 mm × 2 mm, elliptical-cordate, apex broadly notched, distal margins crenulate. *Anther c.* 1.4 mm long, shortly rostrate. *Pollinia c.* 1.5 mm long, linear-oblong, yellow, mealy. *Capsule* 12–14 mm × 3–4 mm, obovoid. (Fig. 2 f-i)

DISTRIBUTION AND HABITAT

Apparently endemic to central Victoria. Grows in moist flat areas among grass in open forest and also on dry ridges.

FLOWERING PERIOD

July and August.

NOTES

P. smaragdina has affinities with *P. longifolia* R. Br. but has much larger flowers, petals with prominent proximal flanges which block off the base of the galea and a much larger labellum, which is usually emerald green but is occasionally brownish green. Sporadic hybrids occur where both species grow in close proximity at Diamond Creek. *P. smaragdina* is also similar to *P. chlorogramma* but has much larger, broader flowers and a larger labellum with widely spreading lateral lobes.

CONSERVATION STATUS

Moderately widespread and conserved in the Brisbane Ranges National Park. Suggest status of 3RC by criteria of Briggs & Leigh (1989).

ETYMOLOGY

From the Latin *smaragdinus*, emerald green, in reference to the colour of the labellum.

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